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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,814	08/19/2003	Byung-Jik Kim	P23232	3097

7055 7590 06/16/2006

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EXAMINER	
GILLAN, RYAN P	

ART UNIT	PAPER NUMBER
3746	

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/642,814	KIM ET AL.	
	Examiner	Art Unit	
	Ryan P. Gillan	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Due to new grounds of rejection of claims 5, 6, 9 and 10, previously objected to as being allowable subject matter, but depending from rejected claims, this Office Action is made Non-Final.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, are rejected under 35 U.S.C. 102(b) as being anticipated by Park et al. (2002/0023449). Park et al. teach a reciprocating compressor comprising: a piston (10) which reciprocates in a cylinder (3) by receiving a driving force of a reciprocating motor (paragraph 30) and has a gas suction (12a) path therein and a suction valve (20) mounted at an end surface of the piston to control flow of taken in gas through the suction path; a valve assembly having a discharge cover (unnumbered, but clearly seen in figure 5) engaged to one side of the cylinder, a discharge valve (8) installed at an end portion of the cylinder to control gas discharge of a compression space formed by the cylinder and the piston, and a valve spring (unnumbered, but clearly seen in figure 5a) that elastically supports the discharge valve; a suction valve fixing member (30) engaged to a frontal surface of the piston to receive the suction valve for back and forth movement; the suction valve opens the suction path at the time when gas is taken in and closes the suction path at the time when gas is compressed and is provided with

supporting surfaces at the outer circumference thereof, and suction surfaces that pass gas are formed between the supporting surfaces (paragraphs 38-40); the suction valve is composed of a thin plate (clearly seen in figure 5a); the suction valve fixing member having a cylindrical shape (clearly seen in figure 5a) which is forcibly fit onto a frontal side of the piston (paragraph 32).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 5, 6 and 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. in view of Chalk et al. (6,530,761). Park et al. teaches all of the claim limitations cited above, but fails to teach the suction valve fixing member is provided with a through hole connected to the suction path at a center of the frontal surface of the fixing member suction valve; wherein a protrusion surface is formed at a center of the rear surface of the discharge valve to correspond to the through hole; and a stopping portion extending transversely from an end portion of the body to restrict the movement of the suction valve.

5. Chalk et al. teaches a suction valve fixing (14) member is provided with a through hole connected to the suction path at a center of the frontal surface of the fixing member suction valve (22); wherein a protrusion surface (18) is formed at a center of the rear surface of the discharge valve to correspond to the through hole (clearly seen in figure

1); and a stopping portion extending transversely from an end portion of the body to restrict the movement of the suction valve (clearly seen in figure 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the valve fixing member and valve assembly of Park et al. to incorporate the fixing member and valve assembly as taught by Chalk et al. as a means of providing a valve that is biased completely by the flow pressure of the fluid as opposed to having a spring loaded valve or a valve that is predisposed in a closed position, therefore changing the operating means (col. 5 lines 46-52).

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. in view of Chalk et al. and Phillips (2,522,633). The combination of Part et al. and Chalk et al. teach all of the claim limitations as cited above, but fail to teach a female screw formed at the inner circumferential surface of the suction valve fixing member and a male screw formed in the front of the piston.

7. Phillips teaches a female screw (26) formed at the inner circumferential surface of the suction valve fixing member (27) and a male screw (25) formed in the front of the piston (43). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the piston and valve fixing member taught by the combination of Park et al. and chalk et al. to incorporate the and male and female screw portions as a means of attachment of the valve fixing member to the piston, while providing for easy disassembly for repairs.

8. Claims 7, 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oh et al. (6,152,710) in view of Clement (5,232,354). Oh et al. teach a

reciprocating compressor comprising: a piston (60) which reciprocates in a cylinder (30) by receiving a driving force of a reciprocating motor (col. 1 lines 41-44) and has a gas suction path (60a) therein; a suction valve (63) mounted at an end surface of the piston to control flow of taken in gas through the suction path; a valve assembly having a discharge cover (90) engaged to one side of the cylinder, a discharge valve (400) installed at an end portion of the cylinder to control gas discharge of a compression space formed by the cylinder and the piston, and a valve spring (35) that elastically supports the discharge valve; a round head rivet (64) that fixes the suction valve to the piston and extending through an end portion of the piston (clearly seen in figure 9); and an insertion groove (42) having a concave recess formed at the rear surface of the discharge valve to receive the round head rivet (clearly seen in figure 9). Oh et al. fails to teach the round head rivet provided with a round head having a convex surface at each end thereof.

9. Clement teaches a round head rivet (128) that fixes the suction valve to the piston, the round head rivet provided with a round head having a convex surface at each end thereof and extending through an end portion of the piston (clearly seen in figure 1); and an insertion groove (152) having a concave recess formed at the rear surface of the discharge valve (142) to receive the round head rivet (clearly seen in figure 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the rivet of Oh et al. with the rivet taught by Clement providing a common fastening means that is inexpensive and reliable.

Response to Arguments

10. Applicant's arguments with respect to claims 1-4, 7, 8, and 11 have been considered but are moot in view of the new ground(s) of rejection. The applicant's amendments and arguments have been fully considered, but in view of the prior art cited above applicants arguments are found unpersuasive.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan P. Gillan whose telephone number is 571-272-8381. The examiner can normally be reached on 8:00 am - 4:30 pm; Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thorpe can be reached on 571-272-4444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RPG

TAE JUN KIM
PRIMARY EXAMINER